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Research Commentary

Diversity of the Information Systems Research Field: A Journal Governance Perspective

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Abstract. Diversity has attracted much attention within the information systems (IS) field, with literature concentrating on diversity in topics and methods. These constitute two of three identified areas of research field diversity; the little-investigated third area includes demographic and social diversity of researchers. This study explores this gap for researchers comprising the editorial advisory boards (EABs) of 52 IS journals and links the underexplored types of diversity to topic diversity. The journals are categorized into seven intellectual communities, using topic affinity of journal content, and a social network of EAB members constructed from board interlocks. The network structure appears to reflect the topic-based community links. Journal communities are aggregated into two components of the social network: a business-school-related core set of journals and a more diverse computing- and engineering-related periphery. The strong ties at the network center do not necessarily reflect journal status. The observed combination of focus and diversity is consistent with a polycentric view of the IS field. Findings suggest low demographic diversity in the field and that demographic diversity correlates with other types of diversity. The field's separation into business core and computing periphery is highlighted as potentially challenging to the IS field's identity.

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Introduction

Much has been written about diversity in the information systems (IS) research field—but what do we really know about it? We know that diversity has attracted a good deal of attention and that researchers differ on whether research diversity is good (Robey 1996) or bad for the field (Benbasat and Weber 1996, Benbasat and Zmud 1999). Some contributors to this diversity debate (e.g., Landry and Banville 1992, Taylor et al. 2010) have used Whitley's (1984) schema, which categorizes the intellectual and social organization of scientific fields by three key dimensions that are subject to diversity: research topics, research methods, and political dependence of researchers. The IS diversity debate centers on research *topics* and, to a lesser extent, *methods*, while the third dimension, encompassing social processes that govern knowledge production, has been relatively unexplored. If the IS research field is characterized as a sociotechnical system of knowledge production, then social aspects (such as the relationships between the researchers working within the field) and demographic aspects are important not only in their own right but also because they shape the technical aspects of topics and methods, and vice versa. We believe that IS researchers should reflect more on the diversity of the field's social and demographic aspects. In this paper, we intend to shed some light on these aspects and hope to stimulate the IS community's increased interest in the important challenges thrown up by social and demographic diversity of the research field. We pose a number of questions related to the knowledge gap in this social domain: how socially diverse is the IS research field when examined through the lens of social networks and demographic variables? How do social and demographic diversities relate to topic diversity?

To answer these questions, we focus on the diversity of the editorial advisory boards (EABs) of 52 journals that the Association of Business Schools (ABS) identifies as comprising the IS field.[1] These related groups of academics and, to a lesser extent, practitioners constitute key governance mechanisms for the main knowledge production process within the IS research field. Our study shows that, in contrast to the high topic diversity that the contributors to the IS diversity debate identify, diversity of EABs is low for key

demographic variables, with male researchers affiliated with U.S. universities dominating boards. A major finding is that the IS research field can be split into two similar-sized groups of EABs that differ substantially on board member demographics, journal content, journal connectivity, and journal quality grounds. A core group of journals is central to the social network constructed from board interlocks. Journals in this core group have, on average, more board members than those in the peripheral group, closer affiliations to business schools, less diversity of country affiliations, and higher quality ratings. The journal content of this core group relates more to the interests of business school researchers, while the content of the peripheral group of journals links more to researchers in computing and engineering faculties. In the study's implications, we draw attention to a key question for the IS field; is this major separation a healthy one—or is it a challenge to the field's identity?

This paper continues with a background section in which we discuss the meaning of diversity, how its impact has grown in importance in the IS literature, and how it has been studied. We explain our approach and the different types of diversity that we study. Next the sample demographics and our main findings are presented. Finally, we conclude with comments on the study's implications.

Background

What Do We Mean By Diversity?

The Merriam-Webster online dictionary defines diversity as "the quality or state of having many different forms, types, ideas, etc."[2] Diversity has been much studied, but few papers explore diversity constructs in-depth. Harrison and Klein's (2007) paper stands out and is cited rather frequently.[3] They use diversity "to describe the distribution of differences among the members of a unit with respect to a common attribute, X, such as tenure, ethnicity, conscientiousness, task attitude, or pay" (Harrison and Klein 2007, p. 1200). Diversity comes in different types, and they identify demographic and nondemographic as two major categories. (Table A1 in the online appendix illustrates the different types of diversity and places the diversity of the IS field in context.) Demographic diversity generally covers six main areas: gender, age, race and ethnicity, sexual orientation, religion and beliefs, and disability, while nondemographic diversity includes various aspects such as research topic diversity.

Avison and Fitzgerald (Avison 1997, Avison and Fitzgerald 1991) see three elements within the IS field, namely, education, research, and practice. The IS literature has explored diversity in all three areas, for example, in education (Galliers and Huang 2012, Yurcik and Doss 2001) and in practice (Avison and Wood-Harper 1991, Hawarth and Van Wetering 1994, Kallinikos et al. 2013). However, most of the literature on IS diversity has focused on diversity in research topics—as we show in Table A1 in the online appendix. Diversity in other forms, e.g., demographic diversity of researchers, is little explored. In examining the diversity of the IS research field, we are particularly interested in the differences between IS community members. A key unit we look at is the journal, or, to be more precise, the journal's EAB. In this paper, we focus on IS research field diversity by exploring and connecting demographic and nondemographic forms of diversity for IS researchers.

What Do We Mean By Research Field Diversity?

We take research field diversity to mean diversity in variables that characterize the research field. Benbasat and Weber (1996) separated research diversity into three areas: problems, theoretical foundations and reference disciplines, and methods. The IS research field, when viewed as a sociotechnical system (Mumford 2006), is comprised of both technical aspects (e.g., research topics and research methods) and social aspects (e.g., interactions between researchers). From the sociotechnical viewpoint, the approach of Benbasat and Weber (1996), and others, focuses on technical artefacts, such as knowledge topics and methods (nondemographic), to the detriment of social aspects, such as demographics of group members. The sociomateriality perspective (Orlikowski and Scott 2008) argues for the need to recognize the intertwined nature of the social and the technical. Some writers (e.g., Landry and Banville 1992, Taylor et al. 2010) have adopted Whitley's (1984, 2000) approach to describing the IS (research) field with a schema that recognizes the field's social nature. Whitley (2000) identified three major characteristics of a field: (a) strategic dependence, the extent of political dependence of researchers in the field; (b) functional dependence, the degree of technical and procedural coherence within a field; and (c) strategic task uncertainty, the extent of conceptual coherence within the field. These three major characteristics are important in influencing a field's social organization and its success in knowledge production.

Why is Research Field Diversity Important?

Diversity of the IS research field is now featured prominently in the literature, and many IS researchers recognize changing diversity as an important marker of the field's progress. During 1996–2005, approximately one paper was published per year referring to diversity across the two leading IS journals, *MIS Quarterly* (*MISQ*) and *Information Systems Research* (*ISR*). By contrast, over the period 2006–2013, annual publications of diversity papers quadrupled.[4] In total, 39 papers have been featured in the two journals since 1995; although, not all of these papers were related to the debate on

diversity in the IS research field. Figures from the same source also show that citations to articles with diversity in the topic field in *MISQ* and *ISR* have increased from one or two in the mid-1990s to approximately 250 citations per year over the years 2010–2013. The diversity debate has not been confined to these two leading journals and, indeed, first appeared in other places (e.g., Landry and Banville 1992).

The fundamental disagreement about what *research diversity* means to the IS field first surfaced in *ISR* with the two papers by Benbasat and Weber (1996) and Robey (1996). Celebrating the 50th anniversary of the IS field's beginnings (Banker and Kauffman 2004), Hirschheim and Klein (2012, p. 193) stated that diversity "is widely accepted as a hallmark of the field." On one hand, (research) diversity signifies to one group of protagonists that the field is fragmented, stagnating, and lacking respect. On the other hand, opposing protagonists believe that diversity enriches the field (e.g., Robey 1996, p. 402) and IS researchers should let "many flowers bloom." Taylor et al. (2010) neatly squared the circle by showing how the IS field is a mosaic of diverse clusters each containing a focused grouping of topics that have evolved over time. King and Lyytinen's (2006) book makes a key contribution by collecting together and summarizing the substantive literature on the IS field's identity and legitimacy, and connects these ideas to the field's diversity. They use the phrase "intellectual diversity" (King and Lyytinen 2006, p. 350), which appears similar to research field diversity. Table A2 in the online appendix illustrates in more detail the development of this diversity debate in the IS literature.

Our Approach to Research Field Diversity

IS journals form a major source of data for empirical studies of research diversity. Past studies have focused on journal article content, cocitations, and coauthorships (see Table A1 in the online appendix), with the former occurring more frequently than the latter. While previous literature on research field diversity focused on research topic diversity, we extend the debate to the diversity associated with IS researchers and their research communities. We examine the demographic diversity of IS researchers and the diversity in their social networks. This latter type of diversity, i.e., a form of nondemographic diversity, we label *social diversity*.

Various methods can be used to identify IS researchers for study. We chose to use the EABs of IS journals as a way of obtaining a large and representative sample of the community of IS researchers. By *IS journals* we mean journals that aim primarily to communicate with the IS research community through published papers and are governed by the IS community. This focus ensures that board members of the sampled journals are highly likely to be rooted in the IS community. IS researchers publish in both IS journals and in *non-IS journals* (for further information on IS and non-IS journals, see, e.g., Walstrom and Hardgrave 2001), such as the *Harvard Business Review*, *Academy of Management Review*, and *Management Science*, but the EABs of this latter group comprise researchers from a wide range of academic fields. While some of the non-IS journals may have separate subsections of their EABs specifically tasked with dealing with IS papers, we chose to focus our attention only on IS journals.

In our approach, we first group researchers serving on EABs of IS journals into communities centered on research topics and then examine how topic diversity links to social diversity within journal governance and demographic diversity. We take this approach because we suspect that a research community that is not socially and demographically diverse will not fully explore the diverse research topics and methods that exist. However, we also believe there is a fundamental argument based on equity that justifies the need for social and demographic diversity in any research field.

EABs of Journals Are Important in the Context of Diversity

EABs occupy a fundamental role in influencing academic behavior (Braun and Diospatonyi 2005). Bennis and O'Toole (2005) see editorial board members as key gatekeepers and argue that academics must tailor their research to reflect this influence. Despite their importance, past research into EABs has been limited and patchy (Bedeian et al. 2009). Some disciplines have engaged more with this style of enquiry than others; e.g., accounting (Lee 1995) and sociology (Platt 2007) stand out. Researchers recently introduced a novel approach by using social network analysis (SNA) (Scott 2003, Wasserman and Faust 1999) to gain insight into the important aspect of journal governance (Baccini and Barabesi 2010, Burgess and Shaw 2010). More recently, EABs of IS journals were examined using scientometrics (Cabanac 2012) and SNA (Baccini and Barabesi 2011), although the latter study combined information and library sciences.

How We Study Demographic Diversity

Harzing and Metz (2012, 2013) refer to "diversity management theory" and propose that "a team of individuals with a common background will share common experiences and paradigms" (Harzing and Metz 2012, p. 697) and as such be less receptive to alternative views (Feldman 2008, Ozbilgin 2004). They suggest that teams lacking in diversity will also lack resources to be more innovative and creative (Cox and Blake 1991). Thus, demographic diversity is a key driver of organizational competitiveness (Robinson and Dechant 1997) as well as a key driver

in academia for knowledge development by applying different methodologies and paradigms. Organizational research concentrates on such demographic features as gender, organizational affiliation, and geographical location; these are "visible" sources of diversity (Milliken and Martins 1996). These variables are used because of their fundamental nature, but their data are also easier to access than data on less visible sources, such as social class, economic status, or race/ethnicity. In our study, we include gender, organizational affiliation, departmental affiliation, and geographical location.

Gender. Research on gender is underpinned by moral/ethical and economic arguments for gender diversity and by evidence of discrimination against women in the workplace. Researchers such as Howcroft and Trauth (2008) have highlighted the issue of gender within the IS field. Metz and Harzing (2009) identify women's lack of participation on editorial boards and list three explanatory factors. (1) Many women have not been in academia long enough to reach levels of seniority associated with board membership. (2) Higher-ranking journals correlate positively with a higher number of women on the editorial boards, but there are not many journals in the higher ranks. (3) Journals with a history of female employment are more likely to have a higher proportion of women on the board, but, similar to the previous point, there are limited numbers of journals of this type.

Organizational Affiliation. Where a researcher works is a key pointer to his or her research interests, expertise, and status. Many researchers work in universities, but researchers also work in organizations outside of higher educational systems, e.g., corporate research laboratories, on research that may be more related to practice. High-status organizations are believed to attract high-status researchers; however, university status is correlated with location.

Departmental Affiliation. IS community members in universities are spread across faculties including business, computing science, and engineering. We identify a business school affiliation as influencing researcher interests and contrast it with other "departmental" affiliations. For example, computing-affiliated scholars are more likely to be interested in the information technology (IT) artefact itself, whereas business school academics are more likely to be interested in its impact.

Geographical Location. Geographical location acts as a proxy for a set of cognitions and beliefs (Joshi et al. 2011, p. 10) and is therefore a key factor influencing researchers. Galliers and Meadows (2003) analyzed four journals to define the "nationality" of each journal from the geographical locations of the board members' organizational affiliations. They connected each journal's nationality with the characteristics of the papers it published and showed that this related to authors' nationality and that of the literature they tended to cite in their papers. They argued that this parochialism contributed to the separation and diversity within the intellectual field.

Harzing and Metz (2013) examined the editorial boards of 57 management journals over 20 years and concluded that the internationalization of editorial boards is considered important for the creation and spread of management knowledge. They found evidence that editorial board members are likely to come from the editor's home country, that journals focused on international business are more likely to have a more diverse editorial board makeup, and, finally, that home-country domination declines over time. Among the factors reinforcing a lack of geographical diversity of editorial board members, Harzing and Metz (2012) found a strong correlation between editorial board membership and attendance at top U.S. conferences; however, attendance at European conferences was only indicative of European editorial board membership. They also showed a poor representation of countries where "average" levels of English language exist. English-speaking U.S. organizations dominate academic fields (Singh et al. 2007), as in their emphasis on "hard science" approaches with an alleged overemphasis on the technical to the detriment of other issues (Swanson 2004). Vessey et al. (2002) revealed the dominance of hypothetic-deductive study methods in a review of citations in IS journals over five years (1995–1999). High organizational reputation is correlated with U.S. location, and reputation is expected to impact diversity since high-status organizations will contribute prominently to any disciplinary discourse.

How We Study Social (Network) Diversity

When a researcher serves on two different boards, the two boards are "interlocked." Interlocks can be interpreted in various ways. One way is that the journals are similar, e.g., in content and/or practices, and the same researcher is seen as suitable to their needs. Another interpretation is that the interlock bridges the two boards and permits social interaction and communication between the two. The number of times that a journal EAB interlocks with other boards can be taken as a measure of diversity. SNA (Scott 2013, Wasserman and Faust 1999) is a standard way of analyzing board interlocks and was applied here. SNA was carried out and diagrams (sociograms) were constructed where a node represents a journal board and an undirected arc connecting two nodes indicates that at least one individual is affiliated with the EABs of both journals. The initial sociograms in our analysis depict binary networks where a connection either exists or not. In a later sociogram, the connection is weighted by the number

of EAB members; i.e., the arc is valued according to the number of members common to the boards of both journals.

How We Study Research Topic Diversity

Previous studies have taken a number of different approaches to topic diversity (see Table A1 in the online appendix). Our focus on EABs requires an approach to topic diversity that is journal rather than article directed. We chose to cluster the sampled IS journals into seven subfields (communities) based on the content affinity of the journals using the latent semantic analysis work of Larsen et al. (2008).

The Sampled Journals

Taylor et al. (2010) refer to the "basket of journals" problem, i.e., study results on focus and diversity are sensitive to the choice of journals (Chua et al. 2002). In selecting a comprehensive and representative journal set, we had to look further than the well-regarded but narrowly drawn lists such as that of the *Financial Times*, the Tulsa list, and the Association for Information Systems (AIS) Senior Scholars' Basket of Journals (http://ais.site-ym.com/?SeniorScholarBasket, accessed October 17, 2016) comprising the eight most prominent journals in the field. We required a sample that was not limited to the so-called "top" journals, i.e., those rated highly in terms of quality and presumably containing top academics on the EABs, since our aim was to examine diversity in a broad sample of journals that represent the whole IS community. However, within the analysis and results, we do identify top journals.

Guidance on sampling usually recommends as large a representative sample as possible. This is particularly the case with SNA, where high sampling proportions are required (Scott 2013). Various comprehensive lists exist of journals where IS researchers publish. However, as indicated earlier, such lists usually comprise both *IS journals,* whose EAB members belong primarily to the community of IS researchers, and *non-IS journals*, whose EAB members do not primarily belong to the IS research community. For example, as of November 26, 2014, the AIS list of MIS Journal Rankings (http://aisnet.org/?JournalRankings) had 109 entries that included, among others, *Management Science* and the *Harvard Business Review*—non-IS journals whose readership and editorial governance do not lie predominantly in the IS community. Of more relevance to identifying IS journals is the subset of the Association of Business Schools' (2010) Journal Quality List, which includes 52 journals in what is termed the Information Management[5] category, i.e., journals that specifically study IS, IT, and information processes. Table A3 in the online appendix lists the names (in full and short form) and International Standard Serial Number codes for the 52 IS journals. The full ABS list is a comprehensive index of 813 journals that business school academics publish in. The list is divided into subject categories, and an academic panel allocates journals to these categories and also assigns a journal quality score. The ABS quality scores range from 1 to 4, where 1 represents journals that are "modest standard," 2 represents journals that are "well regarded," 3 represents journals that are "highly regarded," and 4 represents journals that are "top journals including world elite."

Measuring Diversity

We use Harrison and Klein's (2007) approach to diversity as the basis for our analysis. They identify three components of diversity between members of an organizational group: separation (differences in position or opinions), variety (differences in kind or categories), and disparity (differences in concentration of social assets or resources). All of the demographic characteristics (gender, organizational affiliation, departmental affiliation, and geographical location) are categorical variables and fall within Harrison and Klein's (2007) *variety* aspect of diversity, where they recommend that diversity of such a variable should be measured by one of two indices, Blau or Teachman. The Blau index is preferred because of its ease of interpretation; i.e., it takes a value between 0 and 1, where 1 is the highest diversity. For dichotomous variables, such as gender, the proportion can be used in place of the Blau index. We followed the strategy of using the proportion for dichotomous variables and the Blau index for other variable types. The calculated summary measures of the (within-board) diversity for each EAB are given in Table 1.

Harrison and Klein (2007) point out that many studies of diversity are single level, where analysis focuses on the diversity between individuals within the unit. If we concentrate on diversity between units, or between clusters of units, then in Harrison and Klein's (2007) terms, we are carrying out a multilevel study. When we cluster boards into communities, then each cluster becomes a unit at a higher level. With clustering, the summary measures that have been calculated for each board become the characteristics that differ when we calculate the within-community (i.e., between unit) diversity. Measures, such as Blau's index for an individual organization, i.e., a measure of *variety* at the lower level, then fall within Harrison and Klein's (2007) scheme of *separation* when the diversity of the indices are assessed within cluster. Harrison and Klein (2007) recommend the standard deviation as the measure of *separation* diversity. Measures, such as journal quality ratings, that have a status value attached are *disparity* metrics of diversity within cluster.

Table 1. Editorial Board Data for the 52 IS Journals

				Within board diversity measures						
Journal name	Larsen et al. (2008) community	ABS score	Number in editorial advisory board	Percent male	Percent affiliated with univs	Percent affiliated with bus. schools	Blau index orgs.	Blau index countries	Percent affiliated with U.S. orgs.	Degree
ACM-TCHI	HCI+	3	25	64.0	72.0	0.0	0.9408	0.5088	68.0	7
ACM-TSEM	SSE	2	18	77.8	94.4	0.0	0.9383	0.5309	66.7	2
ARIST	IS&R+	2	16	43.8	93.8	0.0	0.9219	0.5625	62.5	6
BIT	HCI	2	32	75.0	75.0	6.3	0.9590	0.8242	34.4	3
BJET	HCI+	2	27	70.4	74.1	0.0	0.9575	0.7764	14.8	0
CACM	MIS+	3	92	82.6	63.0	3.3	0.9750	0.4764	71.7	10
CAIS	EC	2	49	71.4	98.0	51.0	0.9746	0.4232	75.5	22
CJ	SSE	2	31	90.3	100.0	0.0	0.9469	0.6868	12.9	2
CSCW	HCI+	1	46	60.9	84.8	2.2	0.9660	0.8374	32.6	9
D	IS&R	2	27	88.9	100.0	96.3	0.9520	0.5322	66.7	17
DSS	MIS	3	70	76.5	100.0	80.0	0.9751	0.5196	68.6	19
EJIS	MIS	3	57	75.4	100.0	64.9	0.9658	0.8033	35.1	16
ES	KBS	3	41	92.1	65.9	26.8	0.9673	0.6104	61.0	7
ESJKE	KBS+	2	28	89.3	96.4	10.7	0.9541	0.75	21.4	3
IC	HCI+	2	57	78.9	82.5	0.0	0.9775	0.8113	29.8	6
IEEE-ITB	HCI+	1	65	84.6	87.7	1.5	0.9813	0.8469	33.8	2
IEEE-TEC	KBS+	1	41	95.1	92.7	0.0	0.9673	0.8983	17.1	3
IEEE-TSE	SSE	3	28	64.3	100.0	0.0	0.9592	0.824	32.1	1
IEEE-TSMC	HCI+	1	36	94.4	83.3	0.0	0.9660	0.8503	27.8	0
IIE-T	MIS+	1	65	83.1	100.0	24.6	0.9557	0.2779	84.6	1
IJC	SSE+	3	59	89.8	93.2	39.0	0.9773	0.5665	64.4	7
IJEC	EC	3	55	85.5	87.3	61.8	0.9759	0.4621	72.7	16
IJHCS	HCI	3	46	53.3	84.8	6.5	0.9716	0.7486	45.7	9
IJIM	MIS	2	26	88.5	80.8	42.3	0.9615	0.5533	7.7	10
IJITM	SSE+	1	30	82.8	80.0	43.3	0.9644	0.8711	10.0	10
IM	MIS	3	93	80.9	95.7	69.9	0.9855	0.9055	22.6	20
IMCS	IS&R+	1	31	90.3	71.0	12.9	0.9615	0.7742	35.5	5
IMDS	MIS+	1	39	82.1	100.0	74.4	0.9730	0.8047	41.0	6
IO	MIS+	3	37	75.7	100.0	81.1	0.9525	0.6034	59.5	15
IPM	IS&R+	3	46	69.6	87.0	2.2	0.9612	0.7958	41.3	8
IR	IS&R+	1	43	69.8	97.7	9.3	0.9713	0.8967	23.3	10
IR2	EC+	2	33	72.7	90.9	42.4	0.9660	0.8301	33.3	15
IRMJ	MIS	1	86	80.2	91.9	54.7	0.9859	0.6049	61.6	19
IS	G&S	2	50	64.0	96.0	10.0	0.9608	0.5624	64.0	17
ISF	EC	2	52	90.4	84.6	57.7	0.9748	0.4283	75.0	17
ISJ	MIS	3	56	83.9	100.0	64.3	0.9732	0.8431	33.9	17
ISM	MIS	2	38	63.2	94.7	63.2	0.9709	0.5208	68.4	12
ISR	MIS	4	62	87.1	98.4	93.5	0.9766	0.4422	74.2	21
IST	SSE+	2	30	70.0	96.7	3.3	0.9622	0.8444	30.0	3
ITP	MIS	2	74	63.5	89.2	41.9	0.9777	0.7615	41.9	21
JAIS	G&S	3	85	74.1	98.8	82.4	0.9835	0.6212	60.0	22
JASIST	IS&R+	3	35	60.0	91.4	2.9	0.9649	0.6106	60.0	10
JCIS	HCI	2	15	93.3	100.0	80.0	0.9067	0.5333	66.7	8
JEIM	MIS+	1	44	86.4	90.9	38.6	0.9649	0.7996	22.7	15
JGIM	G&S	2	68	75.0	98.5	57.4	0.9823	0.8746	29.4	24
JIS	IS&R+	2	21	66.7	76.2	0.0	0.9524	0.8435	14.3	4
JIT	MIS	3	51	72.5	98.0	66.7	0.9612	0.7459	35.3	17
JMIS	MIS	3	59	88.1	100.0	84.7	0.9784	0.3867	78.0	20
JOEUC	MIS	1	59	66.1	100.0	64.4	0.9790	0.4573	72.9	13
JSIS	MIS	3	64	73.4	100.0	76.6	0.9790	0.7515	46.9	26
KMRP	KBS+	1	31	87.1	77.4	45.2	0.9677	0.8866	19.4	8
MISQ	MIS	4	56	71.4	98.2	78.6	0.9770	0.5721	64.3	19
Mean	IS	2.17	46.6	77.2	90.6	36.9	0.965	0.678	46.0	11.2
Std. dev.	IS	0.86	19.4	11.4	10.1	32.6	0.015	0.167	21.8	7.2

Notes. (1) Journals marked with plus in the second column were not present in the Larsen et al. (2008) study and so were categorized for this study. (2) For Blau indices, 0 represents least diverse, and 1 most diverse. Column means are calculated from values in the table and not from overall data.

Data Collection and Analysis

Data for the characteristics of the EAB members of the 52 sampled journals were obtained from publishers' and journals' websites and cross-checked against individuals' pages on the websites of their primary organizational affiliations. Data accuracy depends on the quality of data published on websites, which can be variable. Obtaining and checking the data manually is also time consuming and relies on fallible human beings; therefore, it would be foolish to claim 100% data reliability. However, using data from websites does have benefits in that ease of public access to the data enables comprehensive cross-checking. The data collection method has been used successfully in prior studies (Baccini and Barabesi 2011, Burgess and Shaw 2010).

Earlier sections explain that the study links topic diversity to social diversity and demographic diversity; these earlier sections also explain the selected form of analysis. The analysis started with entering the collected data into Excel, and a number of validation procedures undertaken. Excel and SPSS were used to calculate measures of diversity and descriptive statistics for all demographic variables. These calculations were carried out for the seven communities arrived at by Larsen et al. (2008) based on content affinity and for the whole data set. Differences between communities were statistically tested using SPSS. Analysis of the social network and its diversity was carried out using Netdraw and UCINET (Borgatti et al. 1999).

Findings

Sample Demographics

The IS data set covers 52 journals with 1,932 individual researchers occupying 2,425 editorial board memberships and affiliated with 788 organizations located in 61 countries. The EAB sizes of IS journals vary from 15 to 93 with a mean value of 46.6 (Table 1), sizes consistent with those in Cabanac's (2012) study of 77 IS journals. The distribution of ABS scores for IS journals is not significantly different from that for the overall ABS set of journals (chi = 2.75, $p = 0.432$), suggesting that in terms of ABS quality scores, IS journals are no more diverse than the general population of business and management journals. Apart from the board sizes and the ABS scores for each journal, Table 1 contains various measures of within-board diversity. Several dichotomous variables are included, such as the percentage of the EAB members who are male, the percentage affiliated with a university, and the percentage affiliated with a business school or similar grouping (e.g., college or faculty whose main association is with business). The individual percentages are shown for these dichotomous variables rather than Blau indices, since in this form the reader may more easily understand them. However, with dichotomous measures, high (and low) values indicate low diversity, while the scale midpoint is the highest level of diversity. For those variables containing three or more categories, i.e., board member organizational affiliations, and country of organizational location, the Blau diversity indices are given.

The Editorial Advisory Board Networks

Figure 1 shows the sociogram for the 19 journals in the management information systems (MIS) community. Each node represents a journal, and an undirected arc joining two nodes indicates that at least one individual sits on the EABs of both journals. Figure 1 shows a binary (i.e., unweighted or unvalued) network, as do Figures 2–4. The more connections that a journal has with other journals, i.e., the node degree, then the more centrally the journal is positioned in the sociogram. In SNA, the centrality of a node can be measured in various ways, but the simplest metric, and the one we use, is the node (or actor) degree (Wasserman and Faust 1999, p. 178).

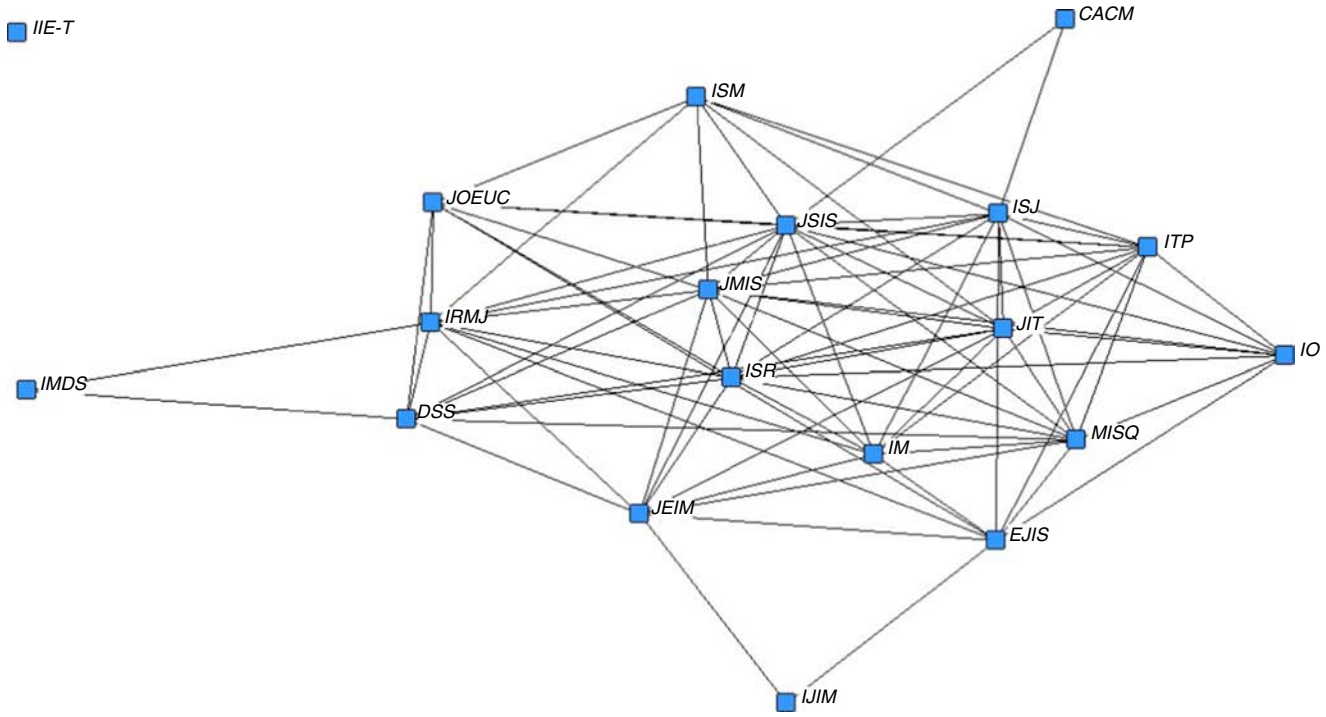
The set of journals in Figure 1 form, on the whole, a well-connected set of EABs with a network density of 46.2%. The individual journals display diversity in their connectivity within the MIS community in that *IIE-T* (placed at the top left of the figure) does not connect with any other journals, while the most-connected journal, *JSIS*, connects to 14 out of the other 18 journals and is placed near the center of the figure.

Figure 2 shows the network for all 52 journals with the shape and color of the node representing the journal's community allocation. *IIE-T* connects to just one of the other 51 journals, while two journals (*BJET* and *IEEE-TSMC*) have no interlocks with any other journals. *JSIS* is again the most-connected journal, with interlocks to 26 other journals. The density of the full network is 21.9%, lower than the 46% for the MIS community. This is not unexpected since the full network includes both within-community connections and between-community connections, with the latter expected to be sparser than the former.

Finding 1: Social Diversity of EABs and Topic Diversity of Journals Are Correlated

Within the full social network (Figure 2), EABs clustered into subgroups that correlate with the a priori communities formed on journal content. This clustering together of nodes (i.e., journals) into communities provides support for the correlation between a journal's position in the social network and their allocated community. This suggests that social diversity of EABs correlates with the topic diversity of the journals that the boards serve. Allocating the IS journals into communities presented some difficulties with identifying coherent subgroups within the IS field, both when looking for closely connected network

Figure 1. (Color online) Sociogram Showing the Binary Network of Undirected and Unvalued Connections (i.e., Ties Dichotomized ≥ 1) Between EABs of Journals in the MIS Community



components (Figure 2) and using hierarchical cluster analysis (not shown here). Such difficulties are consistent with making sense of a diverse field. However, given that the starting point was communities that Larsen et al. (2008) defined by using coword analysis of journal article content, our analysis of EAB data generated encouraging results compatible with these structural features.

Figure 2. (Color online) Sociogram of Undirected and Unvalued Network of Journals with Their Allocation to Communities

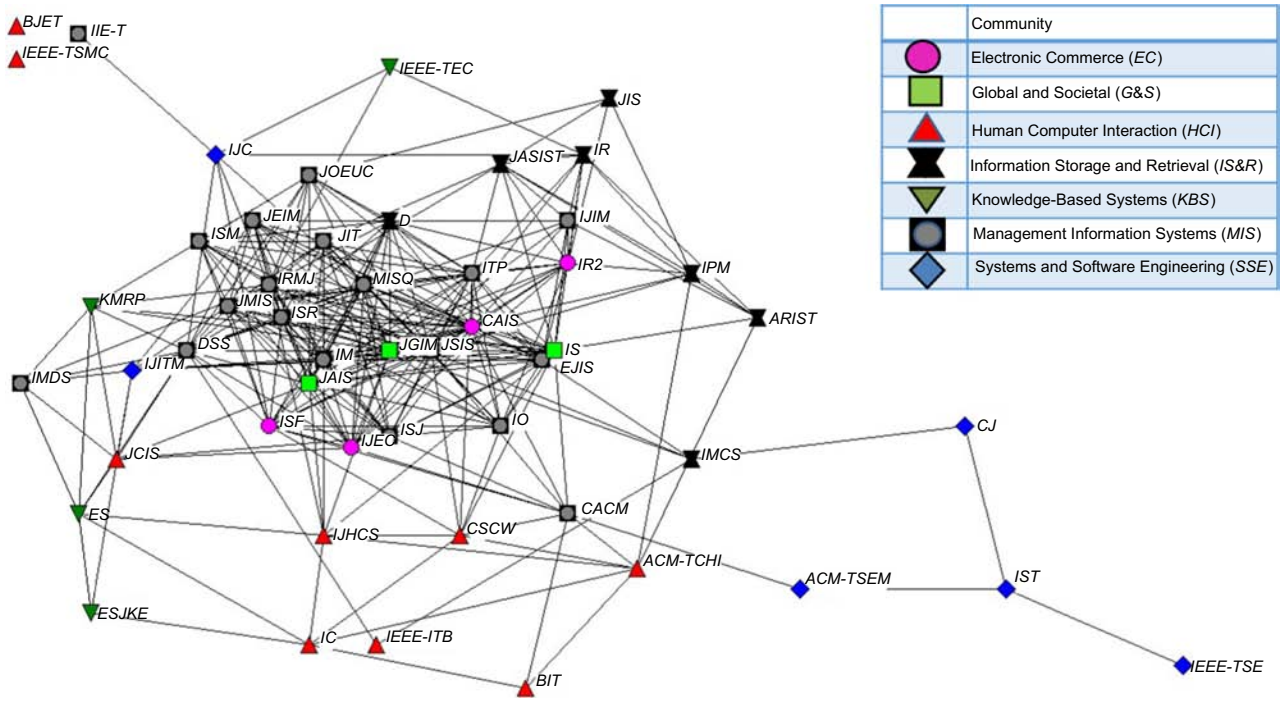


Figure 3. (Color online) Central Group of Three Communities (EC, G&S, and MIS)

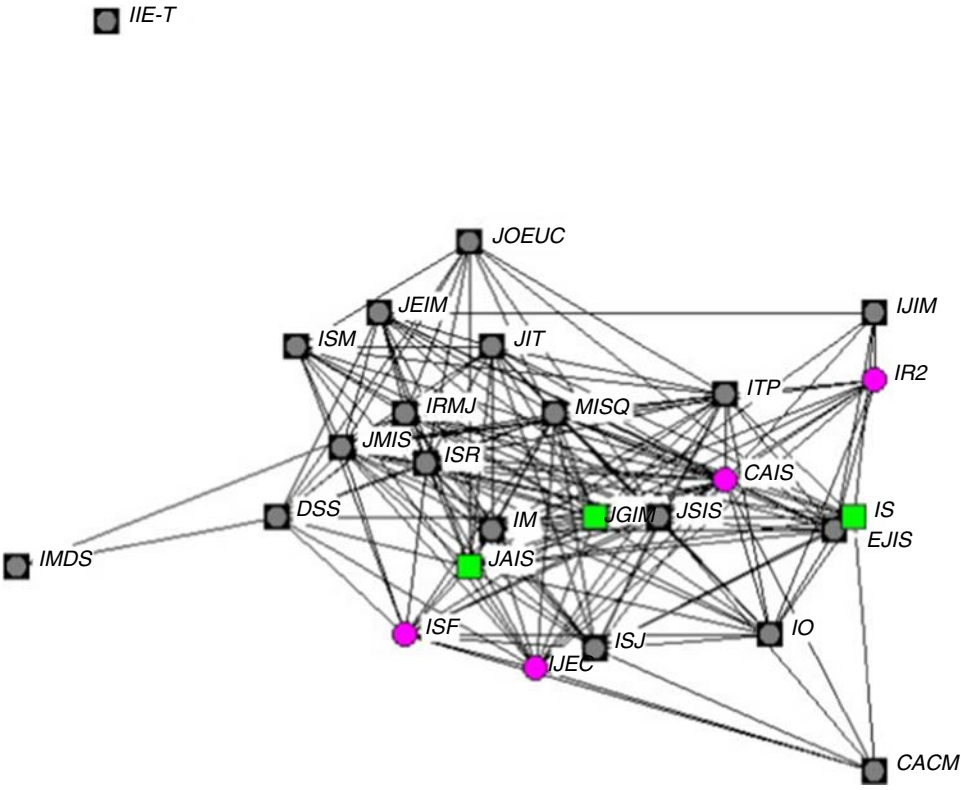
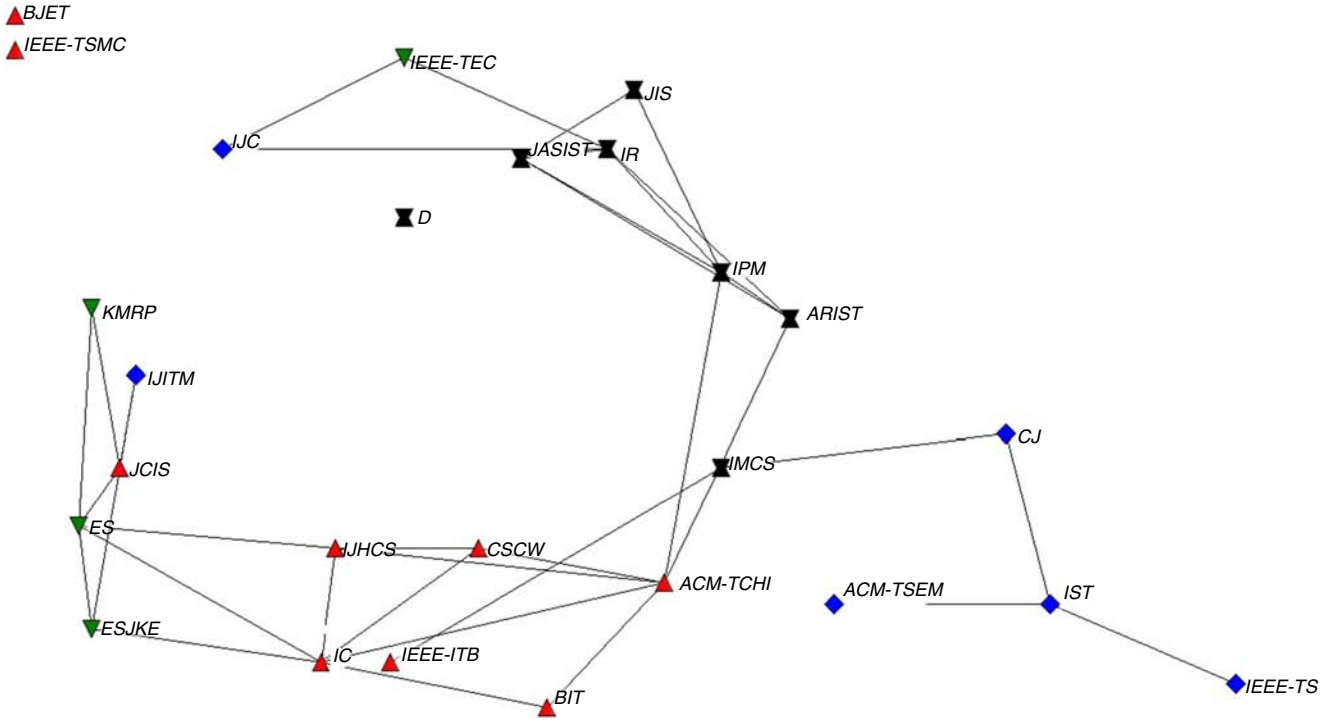


Figure 4. (Color online) Peripheral Group of Four Communities (HCI, IS&R, KBS, and SSE)



Finding 2: The Journal Network Has a Business-Related Core and a Computing-Related Periphery

The EABs forming the communities were further aggregated into a core and a periphery for the overall network using an approach based on Stokman and Snijders described in Scott (2013, p. 91). Figure 3 shows the central core comprising three communities (electronic commerce (EC), global and societal (G&S), and MIS), while the remaining four communities (human-computer interaction (HCI), information storage and retrieval (IS&R), knowledge-based systems (KBS), and systems and software engineering (SSE)) comprise the network periphery (see Figure 4). The connections between the two network components can be matched analogically with the well-known phenomenon of strong and weak ties (Granovetter 1973). The journals in the periphery can be seen to be connected to the core journals by weak ties, i.e., ties with a low number of interlocks, which enable the import of innovative knowledge from the periphery to the central core. In line with Granovetter (1973), journals connected with strong ties are less likely to exchange innovative knowledge.

Based on the journal content signified by the community names, the core is formed from a core set of journals with an affinity to business schools, while the outer (periphery) cluster contains journals related to topics with more affinity to computing or computer science. Clearly, the results are a product of the 52 journals allocated to the ABS Information Management list, and a different list would contain some differences in the results; however, we believe that the comprehensiveness of the ABS list enables the study to identify discernible phenomena of the IS research field.

Finding 3: The Core and Periphery Differ Significantly on Both Demographic and Nondemographic Measures of Diversity

The core (business school) journals differ significantly from the periphery (computing) journals on nondemographic measures of diversity: governance structure (e.g., larger size), community relationships (e.g., higher degree), and journal quality (i.e., higher ABS score; see Table 2). On demographic measures, the two sets also differ significantly with the business school journal set more organizationally concentrated, more geographically concentrated, more U.S. concentrated, and members are drawn more from universities than other organization types. Gender is the only measure that the two groups did not significantly differ on: males dominate both core and periphery groups.

The two groups are located in separate areas of the academic terrain with presumably two different

Table 2. Board Characteristics for the Larsen et al. (2008) Communities

			Nondemographic diversity			Demographic diversity					
Community	Core or periphery	No. of journals	ABS score	No. on board	Degree	Percent male	Percent affiliated with univs	Percent affiliated with bus. schools	Blau index orgs.	Blau index countries	Percent affiliated with U.S. orgs.
Electronic commerce	C	4	2.25	47.3	17.5	80.0	90.2	53.2	0.973	0.536	64.1
			0.50	9.8	3.11	9.4	5.8	8.5	0.005	0.197	20.6
Global and societal	C	3	2.33	67.7	21	71.0	97.8	49.9	0.976	0.686	51.1
			0.58	17.5	3.61	6.11	1.55	36.8	0.013	0.166	18.9
Management information systems	C	19	2.42	59.4	15.63	77.9	94.8	61.4	0.972	0.623	52.2
			1.02	18.4	5.93	8.02	9.25	22.6	0.009	0.177	22.0
Total/mean	C	26	2.38	58.5	16.5	77.5	94.4	58.9	0.973	0.617	53.9
Std. dev.			0.90	17.6	5.5	8.1	8.4	22.4	0.009	0.176	21.2
Human–computer interaction	P	9	1.89	38.8	4.89	75.0	82.7	10.7	0.958	0.749	39.3
			0.78	16.1	3.69	14.3	8.53	26.11	0.023	0.133	17.81
Information storage and retrieval	P	7	2.0	31.3	8.57	69.8	88.1	17.7	0.955	0.717	43.4
			0.82	11.0	4.39	16.18	10.9	35.02	0.016	0.146	20.42
Knowledge-based systems	P	4	1.75	35.3	5.25	90.9	83.1	20.7	0.964	0.786	29.7
			0.96	6.8	2.63	3.48	14.13	19.7	0.007	0.135	20.92
Systems and software engineering	P	6	2.17	32.7	4.17	79.2	94.1	14.3	0.958	0.721	36.0
			0.75	13.8	3.54	10.57	7.43	20.91	0.014	0.148	24.54
Total/mean	P	26	1.96	34.8	5.8	77.0	86.8	14.9	0.958	0.739	38.2
Std. dev.			0.77	12.9	3.9	14.1	10.4	25.7	0.017	0.134	19.9
t			1.82	5.52	8.09	0.14	2.90	6.56	3.82	−2.83	2.76
p			0.075*	0.000***	0.000***	0.893	0.006**	0.000***	0.000***	0.007***	0.008**

Notes. For Blau indices, 0 represents the least diverse and 1 the most diverse. For entries in community cells, the first rows are arithmetic means, and the second rows are standard deviations. Totals differ slightly from those in Table 1 because of grouping into communities.

*T test is significant at the 0.10 level; **T test is significant at the 0.01 level; ***T test is significant at the 0.001 level.

influencing cultures: computing is located in the natural and engineering sciences, while business is within the social sciences. This may explain partly the discerned differences and diversity between the two groups. Separating the IS field into business and computing elements is comparable with the technical and sociotechnical split that Taneja et al. (2009) make in their citation-based SNA study of computing journals. Polites and Watson (2009) also classified journals in a related way in a similar study but of a wider set of journals.

Finding 4: Information Systems Is a Polycentric Field

Landry and Banville (1992, p. 82), using Whitley (1984), classified IS as a "fragmented adhocracy" or a discipline that has low reliance on previous studies, little need to convince colleagues of rigor of research, and no agreed hierarchy of research problems. More recently, Taylor et al. (2010) also used Whitley (1984), but to characterize the field as polycentric. A polycentric field is characterized by a high strategic dependence between researchers and a high strategic task uncertainty; that is, researchers depend on strong relationships with others for reputation and resources, while conceptual coherence in the field is low. SNA is an important way of making relationships between researchers visible, and offers evidence to help decide between the two diagnoses.

Diagnoses of adhocracy have tended to de-emphasize, or even ignore, Whitley's (2000) criterion of strategic dependence, whereas the diagnosis of polycentricism relies on the recognition of high strategic dependence, i.e., strong social relationships. Using SNA to connect EAB members ensures that the criterion of strategic dependence is taken formally into account when making a diagnoses; e.g., polycentrism is linked with a dense network. Furthermore, SNA helps to identify the polycentric characteristics of focus and diversity in the field. The analysis clustered the boards into strongly focused topic-related communities, and then further aggregated them into the two network components of a business-related core and a technical-related periphery. The tension identified between the strong core and the weaker periphery can be likened to the tension between Mode 1 focus and Mode 2 diversity that Taylor et al. (2010) describe as likely to be associated with a polycentric form of organization. The analysis shows the diversity within and between the communities, and similarly for the core and periphery of the network. Demographic data, such as gender, geographical location, and business school membership have been useful in discerning focus and diversity between EABs of the IS field.

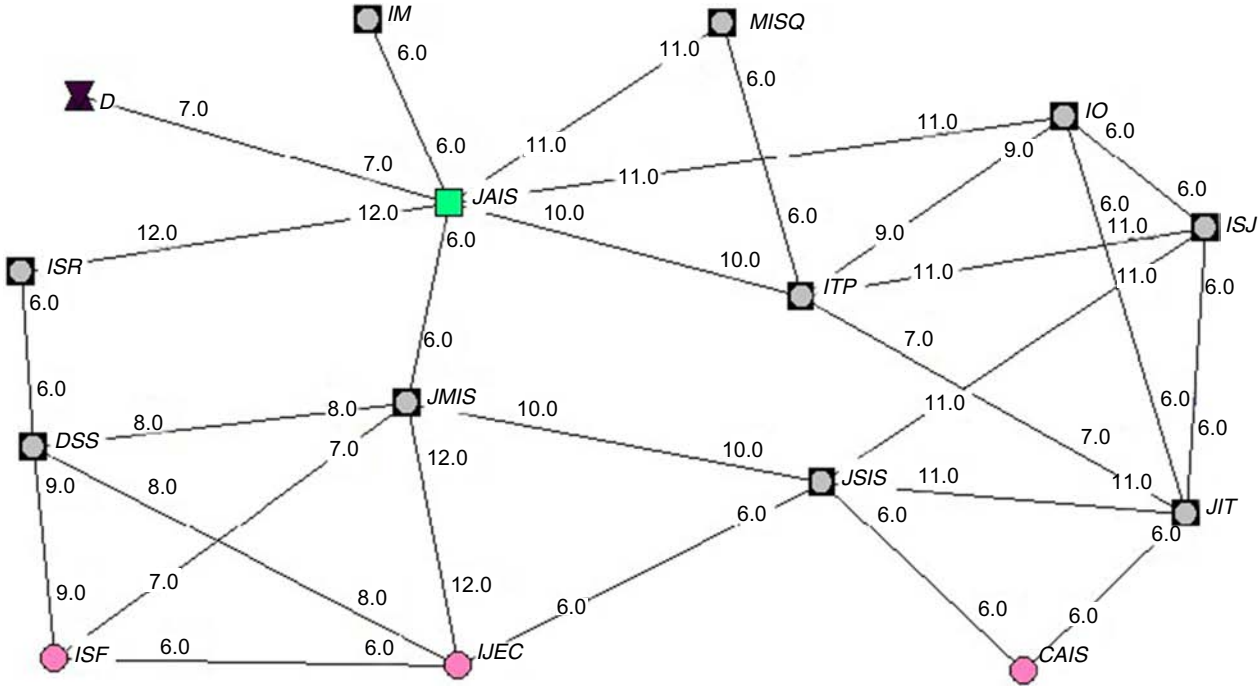
Finding 5: The Strong Ties at the Center of the Network Do Not Necessarily Reflect Journal Status

Figures 1–4 used a binary network approach where a tie between two boards either exists (one or more members on each board are common) or it does not (there are no common members). We extended the analysis of between-board diversity by examining the tie values where the value for a tie is the number of EAB members that link the dyad of journals together. The maximum tie value in the network is 12, i.e., two journals both have the same 12 individuals as EAB members (between *ISR* and *JAIS*, and also between *JMIS* and *IJEC*). This analysis concentrates on ties with values of 6 to 12, which are treated as strong, while 5 and below are treated as weak. The network of strong ties contains five components: a central component of 15 journals, three components each comprising isolated dyads, and an isolated component connecting 4 journals. Figure 5 presents this central component with nodes repositioned to better see the constituent journals and their relationships. Fourteen of the 15 journals were allocated in the earlier analysis to the core (Figure 3) of the (overall) network; the exception is the journal *Database* (*D*), which is located in the IS&R community and therefore in the periphery (Figure 4).

An interesting aspect of the figure is that the two highest-rated journals, *ISR* and *MISQ* (both rated 4 by the ABS), lie on the edge of the core network despite their status within the field. On the other hand, a number of lower-scoring journals occupy central positions in the network, like *JAIS*, *JMIS*, and *JSIS*.[6] The position of *JAIS* is particularly notable since it connects strongly to seven other journals in the group. Why *JAIS* should occupy this brokerage role is not obvious, and this intriguing position is further accentuated by the majority of the journals in this set belonging to the MIS community, while *JAIS* is in the G&S community. Unfortunately, *JAIS* is not included in the citation-based SNA study of Taneja et al. (2009), which would have provided a useful comparison. However, *JAIS* is present in the similar study by Polites and Watson (2009) mentioned earlier, but does not occupy a prominent role. Conversely, in the Polites and Watson (2009) study, *CACM* occupies a key role in linking between IS journals and between IS and computing journals, whereas in this study, it lies in the periphery of the network and lacks prominence.

Two four-member cliques are present, i.e., sets of four journals that all connect strongly to every other member of the clique (*DSS*, *JMIS*, *IJEC*, and *ISF* form one clique, and *ITP*, *IO*, *ISJ*, and *JIT* form the other). Also, a number of three-member cliques can be observed in Figure 5. Returning to the two four-member cliques in Figure 5, these demonstrate the strong connections within the central core of the network. One of the cliques is comprised of all MIS

Figure 5. (Color online) Central Portion of Valued Network for Ties ≥ 6 with Nodes Repositioned for Clarity (see Figure 2 for Legend)



community members, while the other clique is comprised of half from MIS community members and half from EC community members, showing how strongly bound these two communities are.

Perhaps the comparative isolation of both *MISQ* and *ISR* journals within Figure 5 reflects their high standing—their network position reflects their role as elite journals that are used for U.S. tenure decisions. Note, the two journals are not directly linked in Figure 5, signifying an absence of a strong link, but they are in fact weakly linked. This weak connection may be by design and might reflect competition between the two journals. Citation studies do assign a prominent role to *MISQ* in terms of its central and bridging roles in the network, a prominence not duplicated in our study. Although networks based on citations and on EAB membership do have general similarities, the variations discussed above point to the differences between the results of the two types of studies. Although the raw material for both studies arise from social processes, citation studies presumably reflect data more indicative of an "objective" evaluation of the validity of journal knowledge claims than EAB studies. EAB studies reflect a wider and more subjective set of factors capable of influencing appointments of individuals to EABs, including eminence in the field, publishing record, and contribution to service by, for example, commitment to reviewing for the journal.

Finding 6: Demographic Diversity Is Low in the IS Field

Gender Diversity. The results suggest a substantial imbalance in the gender composition of EAB members, with over three-quarters of the data set being male (Table 1), but the proportion varies from an equal gender representation in some journals to five journals with over 90% male representation. The average female proportion of 22.5% differs significantly on a chi-square test (chi-square = 4.1, 1 degree of freedom, $p = 0.04$) from the 25.3% of females reported by the Association to Advance Collegiate Schools of Business (AACSB) in the computer information systems (CIS)/MIS field in 2012–2013 for the full-time faculty in its member business schools (Flynn et al. 2015). Because this is a cross-sectional study, the results provide a snapshot, at the time that data were collected, of EAB's gender diversity. Clearly, the IS field is an evolving one, and aspects such as gender composition do not stand still. In that respect, today's female representations on EABs could reflect less diverse situations in the whole field that applied previously. One could argue that EAB members, by their nature, are not representative of the general set of current IS researchers, and therefore EAB diversity measures may not be representative of the IS field as currently constituted. In particular, EAB membership is expected to be correlated with career seniority; i.e., the more senior the individual's status, the more likely they are to be an EAB member.

In this respect, it is worth noting that female representation in the AACSB data set is negatively correlated with employment status: the proportion ranges from 17.7% for full professors to 24.1% for associate professors and to 32.2% for assistant professors. This impact of seniority on representation is evident in our EAB data set in that only 7.7% of editors in chief are female, i.e., significantly less than the 22.5% female proportion of EABs mentioned above (chi-square = 7.75, 1 degree of freedom, $p = 0.005$) and significantly less than the 17.7% of the CIS/MIS field that are full professors (chi-square = 4.13, 1 degree of freedom, $p = 0.04$).

Organizational Diversity. The diversity of organizational *types* in the sample is low, with the primary affiliation of EAB members mainly with universities and similar academic organizations, with a mean of 90.6% of this type in each board (Table 1); it is not uncommon in some sampled journals for this proportion to reach 100%. The lowest percentage of EAB members affiliated with academic organizations is 63% (*CACM*); i.e., this journal is the most diverse in terms of members affiliated with different organization types. The diversity of *individual* organizations within the studied boards, given by the Blau index of organizations, is high. The most frequently occurring organization in the data set is Georgia State University, with 28 board memberships split across 14 journals. Of the 24 organizations with the highest number of EAB members, 18 are based in the United States, with 4 in the United Kingdom and 1 each in China and Singapore.

Departmental Diversity

On average, within-board diversity on the affiliation to business school measure is low, given that the mean is 36.9% (Table 1). However, the value ranges from 0 to 96.3 across boards, with a standard deviation of 32.6, showing that between-board diversity is high.

Country Diversity. A good proportion of the sampled journals' EABs are dominated by member affiliations to U.S.-based organizations; e.g., 22 out of 52 journals have more than 50% of their members affiliated with U.S. organizations (Table 1). The mean Blau index of 0.678 perhaps understates the situation, since this value reflects that a high number of board members drawn from U.S. organizations is offset by board members drawn from organizations in a good number of countries that occur only once or a limited number of times. For the overall data set, the top five countries are as follows: 48.5% of board members are affiliated with U.S. organizations, 13.7% with UK organizations, 4% with Canadian organizations, 3.9% with Australian organizations, and 3.1% with Chinese organizations. These values also demonstrate the dominance by countries whose primary language is English,[7] with the first four countries comprising 70% of the board memberships. Although in general the United States dominates the data set, the between-board diversity is reasonably high, as demonstrated by the high standard deviation of 21.8 (Table 1). Not all sampled journals have the United States as the country with the largest number of affiliations of board members.

Finding 7: Demographic and Nondemographic Diversities Are Correlated

Table 3 shows significant correlations between diversity measures, and, in particular, correlations exist between demographic and nondemographic variables. All three nondemographic variables are significantly correlated with each other, while the correlations between demographic variables are fewer, and most involve correlations with business school affiliation. Board size, ABS score, and degree are positively and significantly correlated, suggesting that more successful journals (as measured by ABS score) tend to be larger and more socially connected. Larger boards (nondemographic) are also associated with higher proportions of members drawn from U.S. business schools (demographic). It is not surprising that those journals whose boards display higher levels of business school affiliation (demographic) are associated with higher ABS scores (nondemographic) given that these scores are determined by business school staff for business school staff. Board size and business school affiliation correlate positively with organizational affiliation diversity; i.e., the larger the EAB and the higher the business school representation, the more diverse the set of organizations represented on the board. However, the more that business schools and U.S. organizations are represented on the board, then the lower the country diversity. The Blau index for countries is negatively correlated with a number of other study variables including ABS score. This suggests that the more diverse the country distribution of EAB members, the lower the journal quality and the less central its position in the network. The Blau country index is also strongly and negatively correlated with the percentage of U.S.-affiliated board members; i.e., the more diverse the board is, the lower the U.S. affiliation.

Affiliation with business schools is the variable that is most correlated with others, whereas the least correlated variable is percent male, which is significantly and positively correlated with one other variable, that of business school affiliation. The more business school oriented an EAB is, the lower the female representation, a somewhat counterintuitive finding. Notwithstanding the above points, the correlations indicate the need for further work to understand and explain the intricacies of diversity in the IS research field.

Conclusion

This study has systematically examined the diversity of EABs for a comprehensive set of IS journals. In so

Table 3. Pearson Correlation Matrix of the Main Variables

	Nondemographic diversity			Demographic diversity					
	No. on board	ABS score	Degree	Percent male	Percent affiliated with universities	Percent affiliated with business schools	Blau index organizations	Blau index countries	Percent affiliated with U.S. orgs.
No. on board (ND)	1	0.235*	0.585**	0.070	0.152	0.364**	0.758**	−0.132	0.278*
		0.093	0.000	0.620	0.281	0.008	0.000	0.350	0.046
ABS score (ND)	0.235*	1	0.398**	−0.158	0.130	0.319*	0.093	−0.287*	0.354*
	0.093		0.003	0.262	0.359	0.021	0.510	0.039	0.010
Degree (ND)	0.585**	0.398**	1	−0.077	0.387**	0.760**	0.483**	−0.230	0.342*
	0.000	0.003		0.586	0.005	0.000	0.000	0.101	0.013
Percent male	0.070	−0.158	−0.077	1	−0.073	0.247*	0.093	−0.046	−0.095
	0.620	0.262	0.586		0.607	0.077	0.510	0.744	0.502
Percent affiliated with universities	0.152	0.130	0.387**	−0.073	1	0.505**	0.032	−0.142	0.210
	0.281	0.359	0.005	0.607		0.000	0.824	0.316	0.136
Percent affiliated with business schools	0.364**	0.319*	0.760**	0.247*	0.505**	1	0.281*	−0.330*	0.380**
	0.008	0.021	0.000	0.077	0.000		0.044	0.017	0.005
Blau index organizations	0.758**	0.093	0.483**	0.093	0.032	0.281*	1	0.119	0.004
	0.000	0.510	0.000	0.510	0.824	0.044		0.399	0.980
Blau index countries	−0.132	−0.287*	−0.230	−0.046	−0.142	−0.330*	0.119	1	−0.867**
	0.350	0.039	0.101	0.744	0.316	0.017	0.399		0.000
Percent affiliated with U.S. orgs.	0.278*	0.354*	0.342*	−0.095	0.210	0.380**	0.004	−0.867**	1
	0.046	0.010	0.013	0.502	0.136	0.005	0.980	0.000	

Note. Nondemographic measures are marked with ND.
*T test is significant at the 0.10 level; **T test is significant at the 0.01 level; ***T test is significant at the 0.001 level.

doing, it has widened diversity research in the IS field from its existing narrow concentration on technical aspects, such as the diversity of research topics in published journal articles, to explore diversity in the social, political (i.e., journal governance), and demographic domains. This study suggests strongly that journal EABs are dominated by U.S.-based organizations and their male faculty. We have studied the EABs within the population of IS journals both as individuals and in intellectual communities that reflect affinity through subject content. Links have been uncovered between social diversity, demographic diversity, and topic diversity. Overall, we have identified a position that fits with the Taylor et al. (2010) polycentric view of focus and diversity in the IS field. Furthermore, we have demonstrated grounds for separating the IS field into a more focused business-school-related core set of journals and a more diverse technical periphery. Our study evidences that the two network components differ significantly on characteristics such as EAB size, business school affiliation, country affiliation (particularly U.S. affiliation), ABS quality score, and degree centrality. As King and Lyytinen (2006) show, diversity is often discussed in conjunction with the identity of the field. Herein lies a particular challenge to the IS field in that its social, demographic, and knowledge structures coincide in displaying what one could describe as a split personality.

Implications

So what are the implications from our study for those in academia? First, we argue that this study illustrates that the interest in diversity in the literature is narrowly focused on topic (and method) diversity and in need of widening out to other social and demographic areas. Evidence exists in academia that where diversity is not valued, discrimination occurs (Barbosa and Cabral-Cardoso 2007). We contend that members of the IS field should recognize more the sociotechnical basis of their research endeavors and not concentrate too narrowly on the technical side of matters in their research. We believe we have shown one way of expanding diversity study by our investigation of journal governance. In addition, we believe other types of study could be, and should be, constructed to look at diversity in further facets of the IS field. Our study is very much empirically focused and is in the vein of what Avison and Malaurent (2014) would call "theory light"; but this points to opportunities for more research of a "theory heavy" nature.

Like any study, ours has limitations—with the main ones covered at relevant points earlier in this paper. However, we make some general comments here about limitations and future research possibilities. When using social network analysis "boundary issues" are a key concern (Laumann et al. 1983), i.e., what is

included within the boundary of the study and what is excluded. Our choice of the ABS list as our sampling frame sets the boundary for our study and excludes what Walstrom and Hardgrave (2001) term "non-information systems" journals such as *Management Science*. Clearly, these limits leave room for future research that could be mounted with a different boundary that could include "non-IS" journals and/or a more comprehensive set of journals. A wider set of demographic data could be collected in future studies. As Altman and Laguecir (2012) point out, this type of study could be widened out to include data on ethnicity and country of origin. The data set is a cross-sectional one that captures a snapshot of what is a dynamic process whereby researchers join editorial advisory boards, and others leave, on a continuous basis. This points to the opportunity for longitudinal studies to explore the ongoing process. Our study relies methodologically on SNA and straightforward statistical analysis. Clearly there is room for future work using other analytical approaches, e.g., surveys or case studies, to extend the innovative work (Cronin 2009) we have presented here.

The findings suggest that, despite the high topic diversity that is accepted in the IS diversity debate, low diversity for gender (male predominance) and country affiliation (high representation of U.S. organizations) is present in the IS research field. Although diversity in organizational representation can be claimed, the different organizations tend to be U.S.-based business schools. Such dominance may be argued as common knowledge, but research is valuable when overtly substantiating such knowledge with precision and greater authoritativeness than done previously, and thus challenging accountability around the issue. Our study offers some accurate benchmarks of the diversity situation that can act as a call for action, a guide for what action might be pursued, and an aid to monitor progress.

What does the study mean for the individual IS researcher? Ostensibly, this may be contingent on their demographics. If you are female, based outside the United States, and working within a university's engineering faculty, then you might not feel too comfortable. However, for any researcher, irrespective of your demographic characteristics, the data in this paper might cause you to consider repositioning where you submit your papers, away from the journals in the network periphery and more toward those in the core. Doing so could well position your work more at the heart of the IS community. This research might persuade you to pursue membership on an EAB, or might guide you in which journals you might target. The contents of this paper might even tempt you to consider carrying out research into the types of diversity we have explored. At the very least, we hope that this study better informs the individual researcher so that they better understand the environment in which they work.

One of the issues with journal governance is that, in general, the editor or a small editorial team has considerable freedom of decision making, which can be subject to little scrutiny, even by EAB members. The individual researcher might feel that, in such circumstances, a case can be made for more transparent journal governance and more open accountability of factors linked to diversity. If you are an EAB member, you might agree and respond proactively by lobbying for the criteria used in appointments to your EAB to be more clearly and openly articulated. Similarly you might support more open auditing of EAB demographics and the more frequent publication of results.

Publishers and editors in chief may also wish to be proactive in responding to the study findings. Our initial guidance for them would be to consider our allocation of their journal to a community and its location in the core and periphery. To what extent do these match to the journal's expectations and aspirations as they see them? Do they see the members of the community that we identify as appropriate partners for the journal?

The next step might be to consider what form of governance might be appropriate to the journal's aims. We refrain from recommending a specific model of journal governance since we believe that diversity is to be valued in such circumstances, but we do maintain that diversity, openness, and accountability are key principles that should be followed in the design and operation of journal governance systems. For many journals, the norm of appointing a single editor in chief, who tends to be male, might seem ripe for reconsideration. Our study seems to indicate that large EABs go hand in hand with success in terms of journal quality. We note that larger EABs offer more opportunity for the involvement of the IS community than smaller EABs; however, our personal caution would be that many of the larger journals tend to have deep hierarchical structures that may distance individual researchers from the journal and disadvantage them. We suggest that good practice would involve implementing processes to prevent discrimination occurring within EABs, e.g., by adopting gender-blind EAB appointment processes and ensuring in international journals that all major geographical areas are represented by EAB members drawn from relevant locations. One of the other things we suggest is that editors might want to consider more consciously the EAB affiliations of existing and potential members of their own EAB.

In King and Lyytinen's (2006) major work summarizing the identity debate, they conclude that there is the need to embrace uncertainty and to acknowledge the changing nature of the IS field. Clearly there are major changes at work affecting the IS field and its diversity.

For example, the increasing influence of open access journals could potentially change the journal governance landscape in the future. It may be that the governance of open access journals could be designed to better include the research community.

The impact of globalization on academia and research could well challenge U.S. dominance in the research field, but might not affect matters such as gender diversity given that the status of women differs across the globe. Globalization is also presenting challenges to the field of IS practice that will, in turn, affect academia and research. These shifts in IS practice include, for example, outsourcing to India and different technological migration pathways in Africa. The shift to India of IS-related outsourcing has profound implications in terms of technological competence, and research, being transplanted to different parts of the globe.

To finish, we return to the key division highlighted in our study, the business-school-related core and the computing-related periphery. This division goes to the heart of the identity of the IS research field, a topic that King and Lyytinen (2006) show is closely coupled with its diversity. It could be seen that the exhortations to place the "IT artefact" at the core of the field (see, for example, Benbasat and Zmud 2003, King and Lyytinen 2006) reflect the positioning of technical aspects at the periphery. Our study is cross-sectional, so one could ask whether this division we point to is a transient phenomenon or a long-term feature of the IS field. Is this division to be seen as a dysfunctional aberration that is in need of removal or as essential for healthy functioning of the field? We leave that for the reader to consider.

Endnotes

[1] The ABS journal list is updated and refined on a continual basis. We use the fourth version of the list (ABS 2010). The latest (fifth) version was published in March 2015 and is available at https://charteredabs.org/academic-journal-guide-2015/.

[2] See http://www.merriam-webster.com/dictionary/diversity, accessed January 3, 2015.

[3] 1,472 citations on Google Scholar, https://scholar.google.co.uk/scholar?q=harrison+and+klein&btnG=&hl=en&as_sdt=0%2C5 accessed October 17, 2016.

[4] Search for topic = diversity in journals *MISQ* and *ISR* in the Web of Science, http://wcs.webofknowledge.com/RA/analyze.do, accessed April 24, 2014.

[5] We choose to use the more familiar term *information systems* in this paper.

[6] It may be that the scores in the ABS 2010 list underestimate the values of *JAIS* and *JMIS* since they were upgraded from 3 to 4 in the ABS 2015 list (https://charteredabs.org/academic-journal-guide-2015/).

[7] Canada has both English and French as the official languages of the federal government.

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